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REPORTING OF OCCUPATION DISEASES BY PHYSICIANS[1]

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TO secure reporting by physicians of diseases referable to occupations and the environment immediately associated therewith, the following conditions should be considered in order to obtain results of scientific value:

(1) The establishment of a definite and universal nomenclature and classification.

(2) The spread of wider information among physicians as to the details of the hazardous trades.

(3) The possible enforcement of notification through proper legislation.

(4) The encouragement of reporting through distribution of suitable uniform blank forms, designed to economize time and facilitate accuracy and comparison.

I. At the outset the question of nomenclature presents many difficulties. The literature of the occupation diseases, as it exists in English, is very meager, being comprised chiefly in a half-dozen textbooks, a few scattered articles in medical journals, insurance statistics, and occasional reports in trade journals and trade-union literature dealing with isolated trades, rather than with comprehensive classification. The United States census statistics, besides being very restricted, do not clearly differentiate diseases of occupation from surgical injuries, deal only with fatal cases, and ignore the enormous number of cases of chronic invalidism which produce greater or less incapacity for work and lay the foundation for many fatal diseases not primarily caused by occupation, but which are engrafted upon constitutions enfeebled by harmful trades. Thus, the polisher of glazed pottery may not die of the immediate effects of plumbism or of inhalation of flint or other sharp dust particles, but his arteries, kidneys or lungs may become so damaged that he almost inevitably dies if exposed to the germs of pneumonia or tuberculosis. Such a case should be classified as follows:

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[1] Read in discussion at the meeting of the Academy of Political Science, November 11, 1911.

(a) Major occupation: potter.

(b) Detailed hazard: lead poisoning, or dust inhalation (specifying the variety of dust), as the case may be.

(c) Immediate cause of death: pneumonia or tuberculosis.

(d) Contributing cause of death: arteriosclerosis, nephritis, or pneumokoniosis.

(e) Degree of alcoholism or of chronic non-toxic maladies present.

(f) Age and sex.

(g) Duration of employment.

It is desirable to formulate general classification from three different points of view, as follows: (1) A list of occupations. (2) Of injurious substances. (3) Of diseases commonly caused by occupations. For example:

(1) Occupation: knife grinder.

(2) Injurious substance: emery dust.

(3) Disease: cirrhosis of the lung (tuberculosis, *etc.*). Another example:

(1) Occupation: pottery polisher.

(2) Injurious substances: silica, flint, charcoal and lead.

(3) Disease: chronic bronchitis, asthma, lead neuritis or palsy, arteriosclerosis, nephritis, *etc.*

The first classification would include such occupations as knife grinder, potter, wool sorter, typewriter, painter, *etc.*, to the number of about 500 trades. The second would read as follows: lead, arsenic, zinc, chromic acid, feathers, furs, cement, diamond dust, meerschaum, *etc.*, to the number of about 300 deleterious substances. The third would read:

(1) Diseases of the respiratory system: chronic bronchitis, asthma, pneumokoniosis, *etc.*

(2) Diseases of the circulatory system: enlargement of the heart, aneurism, arteriosclerosis, varicose veins, *etc.*

(3) Diseases of the skin: eczema, ulcers, *etc.*

(4) Diseases of the eyes and ears.
(5) Diseases of the kidneys.
(6) Diseases of the nerves and muscles.
(7) Diseases of the bones.

II. Such schedules, elaborated in detail, should be furnished by state health boards to physicians, who should be informed further as to the importance of stating the mode of acquisition of an occupation disease; for preventive legislation may comprise regulations either as to ventilation, provision of protective gloves, masks and respirators, facilities for cleansing the hands and the adequate cleansing of workshops, according as the deleterious substance is air-borne as a dust, inhaled as a basic fume, conveyed to the mouth by the hands or on food eaten at the luncheon hour in a dirty workroom. There are over 150 dangerous trades attributable to the use of lead alone, and it may enter the system in any of the above-mentioned ways. Few who have not specially studied the subject of occupation disease are aware that the makers of iron files are subject to lead poisoning, because the files are embedded in a lead matrix, or that mercury poisoning may be acquired through sublimation in the hot-pressing and glossing of silk hats, or that it obtains among workers in white rubber, or that bronchitis and scalp irritation may be acquired in a soap factory where silica is added to make a scouring soap. Such facts should be briefly stated, in any classification of hazardous trades, so that physicians may especially investigate them.

The desirability of legislative enforcement of reporting is a debatable question. It is true that without such enforcement experience has shown that for various reasons physicians are lax in reporting contagious diseases to the health boards. They either are too busy, pre-occupied or neglectful, or do not appreciate the importance of collaboration in such matters. The occupation diseases, however, present somewhat different registration problems. They are more fixed and concentrated in locality. The main object of notification, as concerns purely economic interests, is to secure sufficient definite data on which to base corrective legislation. Such data may better be obtained, in many instances, by stimulating the interest of a few physicians who come in direct association with large numbers of cases of occupation diseases, and who may learn to become expert in recognizing and reporting them, than by compulsory reporting. What is everyone's business easily becomes no one's business. It is of little use, for example, to enact legislation compelling a physician in Saranac Lake to report all cases of mercurial poisoning or the caisson disease. It is of great use to interest a half-dozen physicians connected with the dispensaries in Newark, or living in Danbury, to report all cases of mercury poisoning in connection with the glossing of silk hats. In other words, better results are often obtained through leading than through driving. One or two small but active associations composed of those directly interested in the matter, could prepare blank forms for registration and brief synopses of the conditions to be inquired into especially, and see that they were given to the physicians having the largest opportunity for observation. They could bring into association with such physicians district workers who would be of great service in verifying concomitant social data.

A member of my staff in the medical clinic of Cornell University Medical College in this city, Dr. Frederick L. Keays, as physician to the Pennsylvania Railroad tubes, has made the best report on the caisson disease ever written, comprising a study of 3692 cases with 20 deaths, originating among 10,000 workmen employed. No compulsory legislation could be expected to produce results of comparable value. Another member of my staff, Dr. Montgomery H. Sicard, has made a similar study of poisoning among brassworkers. Such specific study, based upon concentrated work with a large number of dispensary cases, is worth much more than general compulsory notification by a large number of physicians untrained for the work. The new compulsory notification law of New York state (ch. 258 of the laws of 1911), which is also on the statutes of five other states, requires notification of poisoning by 4 metals, 1 germ, and injury by compressed air—a meager list, yet a beginning. The notification blanks issued under this law to physicians by the state department of labor are deficient in that they make no provision for record of age or sex, the duration of the patient's employment at his trade, the mode of entry of the poison into the system, as through inhalation, through the mouth or integument, and no reference whatever is required in regard to the important factors of alcoholism and certain chronic specific diseases.

In illustration—a man might have been a hard drinker for ten years and have acquired arteriosclerosis and Bright's disease therefrom, and he might have worked in lead, which causes the same diseases, for only ten days, yet the present method of compulsory registration would tend to class him under lead occupation with the erroneous inference that his disease was due to it.

Such a lax method of gathering data renders them of negative scientific value and of very little trustworthiness as a foundation for legislation. A thorough investigation of one occupation, or one group of occupations at a time, made by competent physicians, would secure more convincing data in a year than would be derived from a score of years of collection of such superficial reports.

Registration to be of service should be coöperative. Thus, although the New York state law requires the registration of caisson-disease cases, the classification of the United States census of the hazardous occupations in a list of 156 fails to mention caisson workers, nor does it include workers in fur or feathers, or plumbers, occupations presenting much more serious hazard than those of cab drivers or makers of neckties, which it does give.

The sample history cards reproduced below are in use in my medical clinic conducted in the Cornell University Medical College Dispensary and in the wards of Bellevue Hospital, as an attempt to obtain comprehensive data of accuracy. In addition, my assistants are furnished with a list of the major occupation diseases and hazardous trades likely to be met with in New York City.

The data collected by physicians, whether under compulsory legislation or voluntary, should be reported to the state and local boards of health, rather than to the state labor bureaus, for the equipment of the former is better adapted to deal with the complex technical and scientific questions involved, and physicians are more in the habit of coöperating with these bureaus. It is easy to compile mortality statistics but it is of far more importance to compel the periodic examination by physicians of workers in dangerous trades, in order to detect incipient disease before the victim is invalided or organically injured for life.

In conclusion, the adoption of a uniform classification and the spread of definite information as to the details of what constitute hazardous trades should precede compulsory notification by physicians.

SAMPLE HISTORY CARDS

USED IN CORNELL UNIVERSITY MEDICAL COLLEGE DISPENSARY

Respiratory diseases: dust, fumes; Diagnosis. Case No. Hist. No.
Name Age M. F. S. M. W.
Occupation
Occupation in detail:
Drinker: (hard, moderate, abstainer). Syphilis (years). Years employed
Hours of work No. of co-workers Are they also affected?
Prophylactic instructions?
Ventilation: Fans, hoods, windows (open, shut). Masks? Respirators?
Room cleaned, how often?
Exposure to cold, heat or wet?
Physical examination of pharynx
lungs heart

General condition: Weight anemia, Hb. % r. b. c. w. b. c.
digestion
cough sputum exam.
Acute symptoms at beginning of work; coryza, headache.
Note especially: recurrent bronchitis, asthma, dyspnœa, rhinitis, laryngitis, vertigo, pneumokoniosis, tuberculosis.
Onset of tuberculosis in relation to duration of employment.
Present symptoms: chief complaint
Special notes:

Metal poisoning diseases. Diagnosis Case No. Hist. No.
Name: Age: M. F. S. M. W.
Occupation:
Occupation in detail:
Drinker: (hard, moderate, abstainer). Syphilis (years) Years employed
Hours of work No. of co-workers Are they also affected?
Prophylactic instructions?
Washing facilities: (good, poor). Lunch eaten where?
Ventilation of room? Masks, respirators (for fumes)
Room cleaned, how often?
Details of metal: dust, filings, fumes, alloys (composition) Solder?
Port of entry: mouth, nose, finger-nails.
Protective agents: gum or tobacco chewing? Milk? Wife's miscarriages?
Physical examination: gums teeth beard?
arteriosclerosis blood pressure heart, size
murmurs lungs:
digestion constipation
nervous system: neuritis cramps palsy
hands: eczema fissures ulcers
Blood examination: Hb. % red cells white cells
basophiles
Urine examination: alb. casts sp. gr. lead?
Eyes: trauma injury by heat, light
Acute symptoms at beginning of work vertigo gastrointestinal
nervousness
Synopsis of present symptoms: chief complaint

OCCUPATION DISEASES

I. Diseases of the Respiratory System : *Solid Irritants*, *Fumes.*

[A] SOLID IRRITANTS:—

1. Sharp insoluble mineral dusts, as steel, silica, emery, glass, flint.
2. Soluble metal dusts, as lead filings.
3. Soft organic dust as particles of cotton, wool, grain, feathers, *etc.*

Investigate especially: weavers, spinners, workers in fur, feathers, flax, jute, wool, horsehair, cotton, tobacco, grain elevators, street sweepers, subway and tunnel employes, ashmen, coal heavers, stokers, firemen, chimney sweepers, plasterers, cement grinders, pottery polishers, porcelain workers, grinders of meerschaum, scissors, knives, needles, *etc.*, workers in leather, skins and paper, wood sawyers, stonecutters, brass polishers, filers of iron and steel, brick makers, emery grinders, diamond and glass cutters.

[B] TOXIC FUMES:—

Workers in asphalt, chromic acid, engravers and etchers, copper refiners (arseniated hydrogen), hat pressers (mercury), beer brewers (CO_2), matches, gas-house workers, wall papers (arsenic), dyers, workers in veneer, wood alcohol, benzine, mercury cyanid, di-nitro-benzol; H_2S and CO fumes, aniline oil, acetelene, tar, creosote, nitro-glycerine.

II. Metal Poisoning Diseases.

[A] Lead:—

Painters, makers of white lead, type founders and setters, solderers and tinsmiths, pottery glazers, gas fitters (red lead), rubber (white lead), metal cork caps, file makers, electrical equipment (solder).

[B] Other Metals:—

Mercury: workers in mirrors, mercurial pumps, incandescent lights, barometers. Zinc oxide paint: workers in bronze, copper and brass (ascertain per cent of alloy used), tin, bronze powders, workers in wall papers and feathers (arsenic), gold cyanid.

III. Traumatic and Occupation Neuroses.

Nature of the trauma or strain. Duration of the occupation. Hours of work. Nerves or muscles affected. Neuritis, pain, cramp, paralysis. Concentration of attention, as in caring for machines. Strain of eyes and ears. Effect of pressure, blows, vibrations, repeated muscular contractures. Position in standing, leaning toward one side, or sitting in cramped postures as in tailoring. Interference with proper lung expansion, and deformities of chest. Gastric neuroses from errors in diet and occupation. General "nervousness" from overwork and strain.

Examine patient for vaso-motor disturbances, reflexes, dysæsthesia, spasticity.